

CLAIMS

1. A field-sequential type display device for performing a display by synchronizing successive switching of lights of a plurality of colors to be incident on a display element with light control in said display element based on display data of each color corresponding to an image to be displayed, comprising:

a detecting unit for detecting a grayscale level of the display data; and

an adjusting unit for adjusting an intensity of light incident on said display element and a light control variable in said display element, based on a detection result of said detecting unit.

2. The display device of claim 1, wherein

the detection of a grayscale level by said detecting unit and the adjustments of the intensity of light and the light control variable by said adjusting unit are performed for each color of light incident on said display element.

3. The display device of claim 1, wherein

said detecting unit detects a grayscale level of maximum brightness of the display data in a predetermined period, and, when obtaining the maximum brightness, said adjusting unit adjusts the light control variable in said display element so as to have maximum transmittance or reflectance of incident light on said

display element and adjusts the intensity of incident light according to the adjusted light control variable.

4. The display device of claim 3, wherein
when obtaining brightness of a grayscale level other than the grayscale level of maximum brightness, said adjusting unit adjusts the light control variable in said display element.

5. The display device of claim 1, wherein
an intensity of light incident on said display element after adjusting the intensity of light and the light control variable by said adjusting unit is smaller than an intensity of light incident on said display element without performing the adjustments.

6. The display device of claim 1, wherein
an incident region of light to be incident on said display element is divided, and the detection of a grayscale level by said detecting unit and the adjustments of the intensity of light and the light control variable by said adjusting unit are performed for each of the incident regions.

7. The display device of claim 1, wherein
said display element is a liquid crystal display element.

8. The display device of claim 7, wherein

a liquid crystal material used in said liquid crystal display element has spontaneous polarization.

9 The display device of claim 1, wherein said display element is a digital micro mirror device.

10. The display device of claim 1, wherein the lights of a plurality of colors to be incident on said display element are red light, green light, and blue light.

11. The display device of claim 1, wherein the lights of a plurality of colors to be incident on said display element are red light, green light, blue light, and white light.

12. The display device of claim 11, further comprising a converting unit for converting red, green and blue display data into red, green, blue and white display data,

wherein said detecting unit detects grayscale levels of display data obtained by said converting unit.

13. A display device for performing a color display by synchronizing incidence of white light on a display element having color filters of a plurality of colors with light control in said display element based on display data of each color corresponding to an

image to be displayed, comprising:

- a detecting unit for detecting a grayscale level of the display data; and

- an adjusting unit for adjusting an intensity of white light incident on said display element and a light control variable in said display element, based on a detection result of said detecting unit.

14. A display method for performing a field-sequential type display by synchronizing successive switching of lights of a plurality of colors to be incident on a display element with light control in said display element based on display data of each color corresponding to an image to be displayed, comprising:

- detecting a grayscale level of the display data; and

- adjusting an intensity of light incident on said display element and a light control variable in said display element, based on a detection result of the grayscale level.

15. A display method for performing a color display by synchronizing incidence of white light on a display element having color filters of a plurality of colors with light control in said display element based on display data of each color corresponding to an image to be displayed, comprising:

- detecting a grayscale level of the display data; and

- adjusting an intensity of white light incident on said display element and a light control variable in said display element,

based on a detection result of the grayscale level.